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10/555,721	04/02/2007	Christopher L. Bohler	GLOZ 2 00154 (1)	9930

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Fay Sharpe/LUMINATION LLC
1228 Euclid Avenue, 5th Floor
The Halle Building
Cleveland, OH 44115-1843

EXAMINER	
ZETTL, MARY E	

ART UNIT	PAPER NUMBER
2875	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/555,721	BOHLER ET AL.	
	Examiner	Art Unit	
	MARY ZETTL	2875	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *9/14/2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,5-9 and 11-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,5-9 and 11-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *07 November 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 2 and 23 are objected to because of the following informalities:

2. Claim 2 does not any limitations not already provided in claim 1.

3. Claim 23, includes the limitation "a platform which is adapted for mating with a base module." This language is unclear because it is not certain whether or not the platform mates with the base module, or if it can be adapted to mate with the base module.

4. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 23 and 24 are rejected under 35 U.S.C. 102(e) as being anticipated by Harbers (US 6,586,882 B1).

Regarding claim 23, Harbers discloses a modular adaptable (capable of being adapted) LED lighting system comprising: screw base module (7; Figure 1); at least two light modules (2 and 1,3) having different light emission characteristics, each light

module including: a platform (portion upon which the LEDs rest) which is adapted for mating with the base module (Figure 1), and at least one LED (2) disposed on the platform for generating light in a range from UV to infrared wavelengths (Abstract); an enclosure (5), which surrounds the light produced by the light module such that at least a portion of the light is transmitted through the enclosure; and a power module for energizing the at least one LED (necessary to cause the illumination effects described in the Abstract).

Regarding claim 24, Harbers discloses the base module (7) is one of a screw base or a wedge base (Figure 1).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1, 2, 14, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harbers (US 6,586,882 B1) in view of Bowman et al. (US 2003/0076051 A1).

Regarding claims 1 and 2, Harbers teaches a light source comprising: a light engine for generating light of one of a plurality of wavelengths, the light engine including: a platform (portion upon which item 2 rests; Figure 1), and at least one LED

(2) disposed on the platform (portion upon which item 2 rests; Figure 1); an enclosure (5) surrounding a light generating area of the light engine (Figure 1); a base (7) including a heat sink (col. 7, lines 5-8) for conducting thermal energy away from the at least one LED (2), into which heat sink the light engine is mounted (Figure 1); luminescent converting element (3) being adjacent to the at least one LED (2; Figure 1), the luminescent converting element converting at least some of the received light to visible light (Abstract), a luminescent converting element (3) being disposed on or in the enclosure (5).

Harbers does not disclose expressly conversion circuits for supplying electric power to the light engine. Bowman et al. teaches an LED module including a conversion circuit for supplying electric power to the light engine (paragraph 7).

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to have provided a conversion circuit in the invention of Harbers as taught by Bowman et al. for the purpose of providing the desired voltage to the LEDs.

Regarding claim 14, Harbers teaches the base (7) is adapted for mating with the light engine (LED driving section; Figure 1).

Regarding claim 20, Harbers and Bowman et al. does not disclose expressly a substantially transparent enclosure of a variety of shapes. According to In re Seid, 161 F.2d 229, 73 USPQ 431 (CCPA 1947) matters relating to ornamentation only which

have no mechanical function cannot be relied upon to patentably distinguish the claimed invention from the prior art.

It would have been obvious to one of ordinary skill in the art to have modified the invention of Harbers and Bowman et al. such that a variety of shapes were available for the enclosure as a means for increasing consumer appeal by enhancing the decorative effect.

7. Claims 3, 5, 7, and 9-13, are rejected under 35 U.S.C. 103(a) as being unpatentable over Harbers (US 6,586,882 B1) and Bowman et al. (US 2003/0076051 A1) and further in view of Haitz (US 5,758,951 A).

Regarding claim 3, Harbers and Bowman et al. do not disclose expressly a light guide.

Haitz teaches an LED illuminating source including LEDs (21-26) and a light guide (40) within an enclosure (Figure 3).

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to have modified the invention of Harbers and Bowman et al. such that a light guide as taught by Haitz was utilized to produce the desired lighting effect.

Regarding claim 5, Harbers teaches a light bulb including a wire (1 and 3) providing an appearance of a filament (Figure 1).

Harbers and Bowman et al. do not disclose expressly a light guide.

Haitz teaches an LED illuminating source including LEDs (21-26) and a light guide (40) within an enclosure (Figure 3).

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to have modified the invention of Harbers and Bowman et al. such that a light guide as taught by Haitz was utilized to produce the desired lighting effect.

Regarding claim 7, Harbers and Bowman et al. do not disclose expressly a light guide comprising a reflector.

Haitz teaches a light guide (40) including a reflector (reflection due to refractive properties caused by different refractive indices of the material making up 40 and the material surrounding 40).

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to have modified the invention of Harbers and Bowman et al. as taught by Haitz such that the light guide comprised a reflector in order to increase the light output.

Regarding claim 9, Harbers teaches the use of a luminescent converting element (3).

Haitz teaches an LED illuminating source including LEDs (21-26) and a light guide (40) within an enclosure (Figure 3).

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to have disposed the luminescent converting element of Harbers and Bowman on or within a light guide such as that taught by Haitz since providing a coating on or within a light guide will provide the desired optical effect.

Regarding claim 11, Harbers teaches the luminescent converting element (3) including a transparent phosphor (col. 2, lines 34-36).

Regarding claim 12, Harbers teaches the transparent phosphor comprises one of: an organic phosphor, an organic complex of a rare earth metal, a nanophosphor, and a quantum dot phosphor (col. 2, lines 34-36).

Regarding claim 13, Harbers teaches a light source further comprising: one of an index matching material and a lensing material (5) encompassing the at least one LED (Figure 5).

8. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Harbers (US 6,586,882 B1), Bowman et al. (US 2003/0076051 A1) and Haitz (US 5,758,951 A), and further in view of Nold et al. (US 6,102,559 A).

Regarding claim 6, Harbers, Bowman et al., and Haitz do not disclose expressly the light guide (1) comprising an optical fiber with one of internal diffusers, external

diffusers, and other frustrated TIR (Total Internal Reflection) features to allow the light to escape at preselected locations.

Nold teaches an illumination device including a light guide (14) comprising an optical fiber with one of internal diffusers, external diffusers, and other frustrated TIR (Total Internal Reflection) features to allow the light to escape at pre-selected locations (col. 5, lines 45-55).

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to have modified the invention of Harbers, Bowman et al., and Haitz such that an optical fiber as taught by Nold was utilized for the purpose of creating a desired visual effect.

9. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Harbers (US 6,586,882 B1), Bowman et al. (US 2003/0076051 A1) and Haitz (US 5,758,951 A), and further in view of Hsiao et al. (US 6,758,582 A)

Regarding claim 8, Harbers, Bowman et al., and Haitz do not disclose expressly the reflector being comprised of a reflective metal.

Hsaio et al et al. teaches a light guide including a reflector comprised of a reflective metal (44', Figure 3).

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to have modified the invention of Harbers, Bowman et al., and Haitz such that reflector comprised a reflective metal as taught by West et al. since metal is known as a highly efficient reflective material.

10. Claims 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harbers (US 6,586,882 B1) and Bowman et al. (US 2003/0076051 A1) and further in view of Stopa (US 2003/0156416 A1).

Regarding claim 15, Harbers and Bowman et al. do not disclose expressly the heat sink comprising a slug inserted into the base.

Stopa teaches an LED lighting device including a heat sink (50, Figure 1) comprising a slug (49, Figure 9A; paragraph 41) for conducting energy away from the LED (42).

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to have modified the invention of Harbers and Bowman et al. such that a slug as taught by Stopa was included for the purpose of conducting heat away from the LED and electrical components for the purpose of preventing overheating which would otherwise shorten the life of the LED.

Regarding claim 16, Harbers and Bowman et al. do not disclose expressly a plurality of fins.

Stopa teaches a plurality of fins (on the bottom of 50, Figure 1).

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to have modified the invention of Harbers and Bowman et al. such that a fins as taught by Stopa was included for the purpose of conducting heat

away from the LED and electrical components for the purpose of preventing overheating which would otherwise shorten the life of the LED.

Regarding claim 17, Harbers and Bowman et al. do not disclose expressly fins.

Stopa teaches a plurality of fins (on the bottom of 50, Figure 1).

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to have modified the invention of Harbers and Bowman et al. such that a fins as taught by Stopa were included for the purpose of conducting heat away from the LED and electrical components for the purpose of preventing overheating which would otherwise shorten the life of the LED. It would have followed that in arranging the fins, they should follow the shape of the enclosure of Harbers and thus be provided in radial manner.

11. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Harbers (US 6,586,882 B1) and Bowman et al. (US 2003/0076051 A1) and further in view of Tseng et al. (US 2004/0105262 A1).

Regarding claim 18, Harbers and Bowman et al. do not disclose expressly the conversion circuit comprising an AC to DC converter. Allen

Tseng et al. teaches a light engine for generating light of one of a plurality of wavelengths, the light engine including: a platform, and at least one LED (20), an

enclosure, and a light guide (253) within the enclosure, and a AC to DC converter (paragraph 17).

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to have modified the invention of Harbers and Bowman et al. such that an AC to DC converter was provided as taught by Tseng such that the proper wiring was provided.

8. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Harbers (US 6,586,882 B1) and Bowman et al. (US 2003/0076051 A1) and further in view of Gill et al. (US 7,182,597).

Regarding claim 19, Harbers and Bowman et al. do not disclose expressly a metal clad, FR4, and CEM-1 printed circuit board hosting the at least one LED.

Gill et al. teaches a metal clad, FR4, and CEM-1 printed circuit board hosting the at least one LED (col. 3, lines 25-45).

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to have modified the invention of Harbers and Bowman et al. such that a metal clad, FR4, and CEM-1 printed circuit board hosting the at least one LED was provided as taught by Gill et al. since these are well known bases for LEDs.

12. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Harbers (US 6,586,882 B1) in view of Bowman et al. (US 2003/0076051 A1) and further in view of Malcomson (US 5,984,496 A).

Regarding claim 21, Harbers and Bowman et al. do not disclose expressly the enclosure comprising a light diffusing coating.

Malcomson teaches a light bulb including a light diffusing coating (col. 6, claim 11).

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to have modified the invention of Harbers and Bowman et al, such that the light bulb included a light diffusing coating as taught by Malcomson for the purpose of creating a more uniform light output.

13. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Harbers (US 6,586,882 B1) and Bowman et al. (US 2003/0076051 A1) and further in view of Strobl (US 6,356,700 B1).

Regarding claim 22, Harbers and Bowman et al. do not disclose expressly the use of an index matching fluid.

Strobl teaches an efficient light engine including the use of an index matching fluid.

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to have modified the invention of Harbers and Bowman et al. such that an index matching fluid as taught by Strobl was utilized between the light

engine and the enclosure such that light interference was avoided and the desired optical effects were created.

Response to Arguments

14. Applicant's arguments with respect to claims 1-3, 5-9, and 11-24 have been considered but are moot in view of the new ground(s) of rejection. Due to the fact that the provisional application has an earlier effective filing date than some of the references applied in the previous office action, this office action has been made non-final. On page 7, the applicant has argued that "Applicants claim is directed to an LED lighting system having two interchangeable light modules (light engines) of different light characteristics." None of the claims include a limitation for an interchangeable light module, therefore this argument is not relevant.

Conclusion

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Hilsher et al. (US 7,160,012 A) teaches an illumination device including and LED (13) and a light guide (Figure 1), supported by a base (12, Figure 1).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mary Zettl whose telephone number is 571-272-6007. The examiner can normally be reached on M-F 8am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandy O'Shea can be reached on (571) 272-2378. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Sandra L. O'Shea/
Supervisory Patent Examiner, Art Unit 2875

MZ
/Mary Zettl/